

### Patent Claims

1. Method for nozzle jetting of oxygen into a synthesis reactor, e.g. for oxi-dehydration, with mainly radial flow of the gas mixture through a catalyser packing,  
**having the distinctive feature that**  
oxygen is added to a ring distributor system in pure form, as air or mixed with inert gas or water vapour, and is then jetted on to the catalyser surface at an angle to the vertical through several exit openings in the ring distributor system.
2. Method as per claim 1,  
**having the distinctive feature that**  
the nozzle jetting of the oxygen is carried out from the cylindrical plane in the interior of the catalyser bed in the direction on to the reactor wall.
3. Method as per claim 1 or 2,  
**having the distinctive feature that**  
the nozzle jetting is carried out with the help of several parallel pipes having exit openings and forming a cylindrical inner axial plane.
4. Method as per one of the previous claims,  
**having the distinctive feature that**  
the nozzle jetting of the oxygen takes place in a cylindrical axial plane approx. 50 to 300 mm before the cylindrical inner wall of the catalyser bed, which ensures an oxygen dwelling time of  $\leq 1$  sec. in a chamber before the catalyser bed.

6.

5. Device for nozzle-jetting of oxygen into a synthesis reactor, e.g. for oxi-dehydration with mainly radial flow of the gas mixture to a catalyser packing, particularly for conducting a method as per one of the previous claims,  
**having the distinctive feature that**  
there is a ring distributor with several pipes (7) with exit openings (6) forming an inner cylindrical plane before the cylindrical inner surface of the catalyser bed, whereby the exit openings (6) are aligned to release the oxygen on to the cylindrical catalyser surface at an angle to the vertical.
6. Device as per claim 5,  
**having the distinctive feature that**  
the gas exit openings (6) are aligned in alternating sequence to adjacent exit openings of an adjacent ring pipe.
7. Device as per claim 5 or 6,  
**having the distinctive feature that**  
adjacent exit gas openings (6) reveal different flow exit directions.
8. Device as per claim 5 or one of the following claims,  
**having the distinctive feature that**  
the gas exit openings (6) are designed as holes or nozzles.